United States Department
of Agriculture

Natural Resources
Conservation Service

Lakewood, Colorado

RWA 10190002

February 2010

Upper South Platte Watershed

Hydrologic Unit Code 10190002

Rapid Assessment

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.)

Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14th and Independence Avenue, SW, Washington DC 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Introduction

Background Information

The Natural Resources Conservation Service (NRCS) is encouraging the development of rapid watershed assessments in order to increase the speed and efficiency generating information to guide conservation implementation, as well as the speed and efficiency of putting it into the hands of local decision makers.

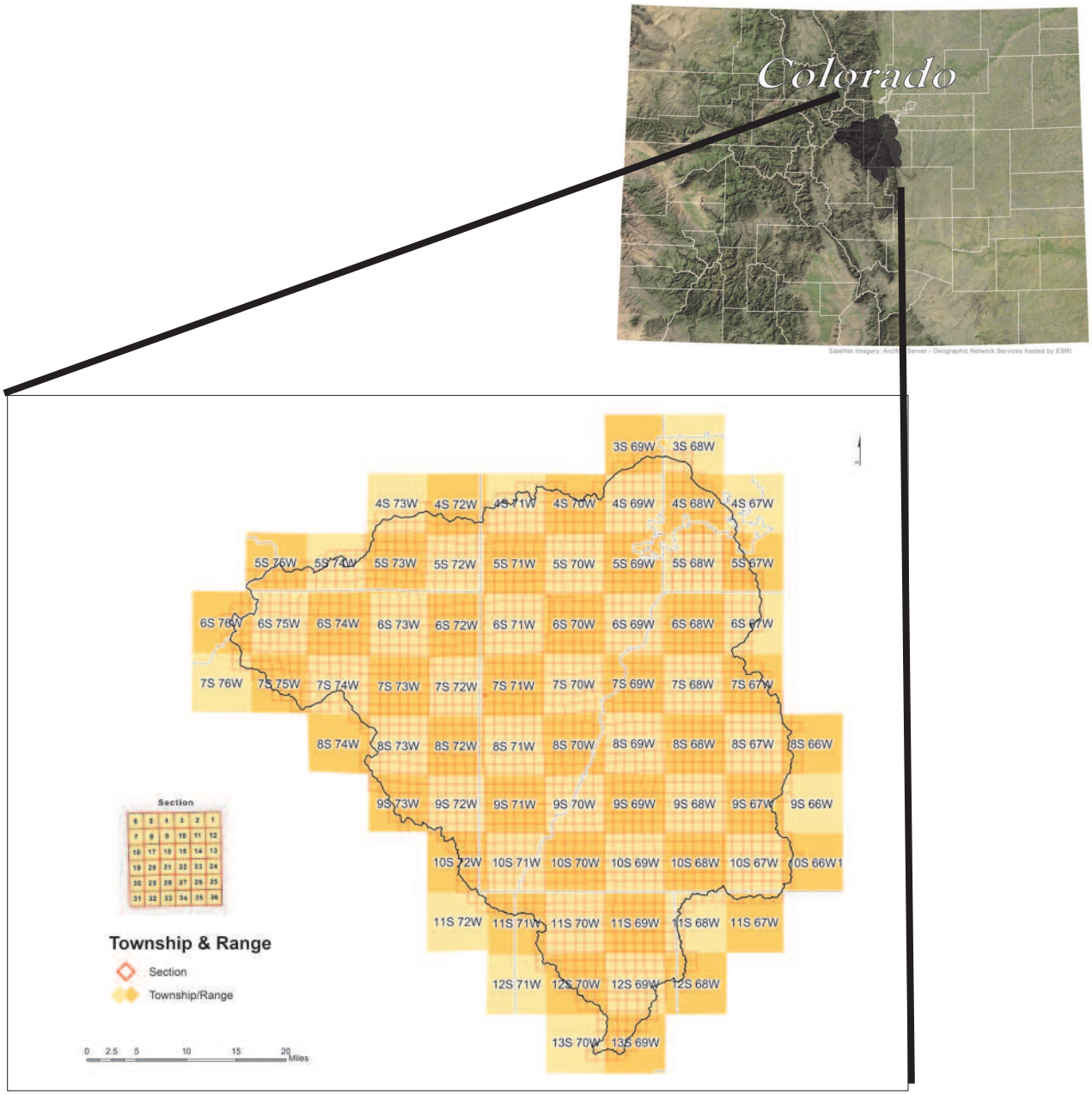
Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help land-owners and local leaders set priorities and determine the best actions to achieve their goals.

Benefits of these Activities

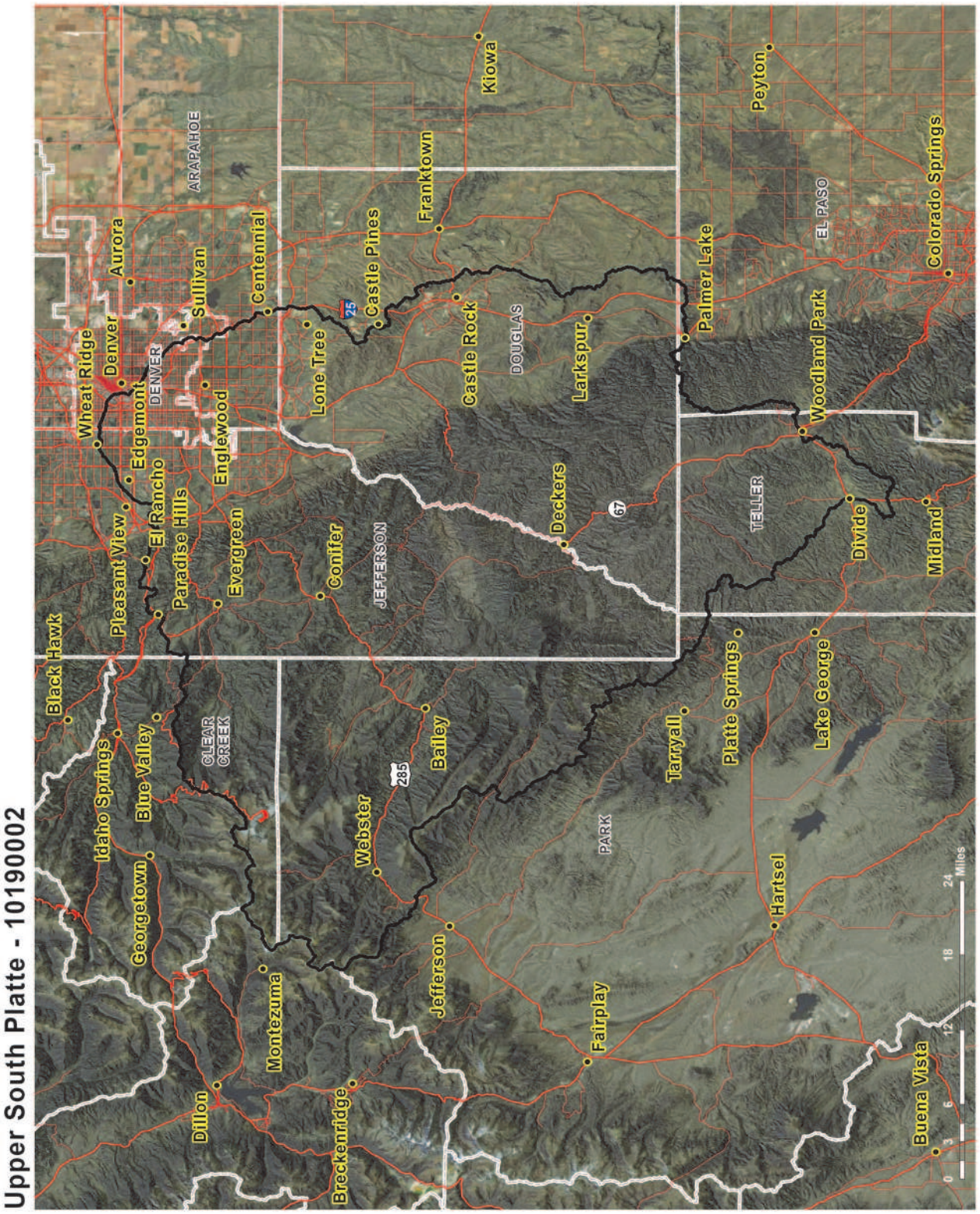
While rapid assessments provide less detail and analysis than full-blown studies and plans, they do provide the benefits of NRCS locally-led planning in less time and at a reduced cost. The benefits include:

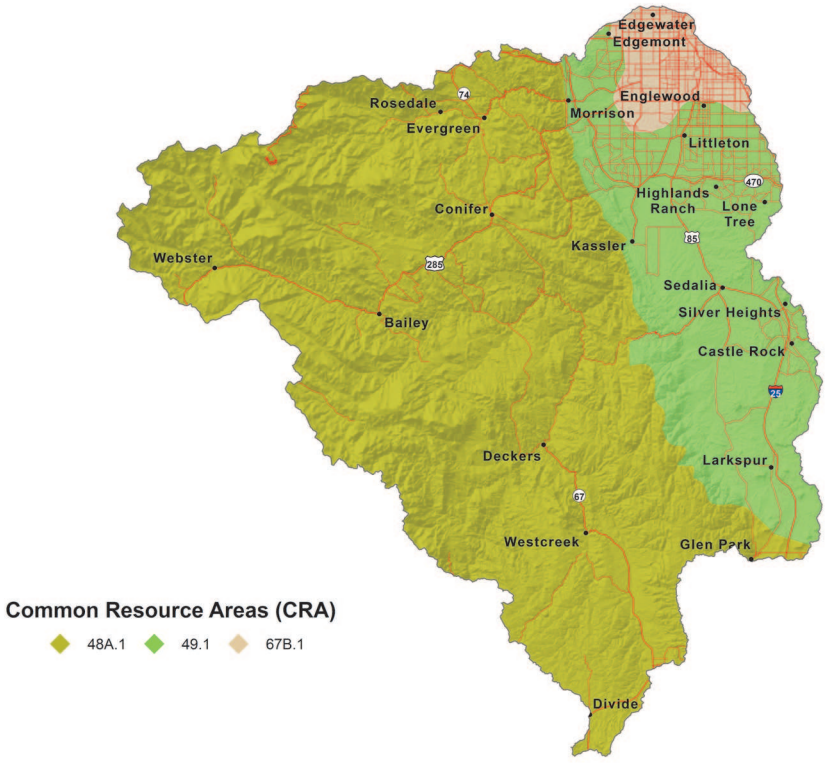
- Quick and inexpensive tools for setting priorities and taking action
- Providing a level of detail that is sufficient for identifying actions that can be taken with no further watershed-level studies or analyses
- Actions to be taken may require further Federal or State permits or ESA or NEPA analysis but these activities are part of standard requirements for use of best management practices (BMPs) and conservation systems
- Identifying where further detailed analyses or watershed studies are needed
- Plans address multiple objectives and concerns of landowners and communities
- Plans are based on established partnerships at the local and state levels
- Plans enable landowners and communities to decide on the best mix of NRCS programs that will meet their goals
- Plans include the full array of conservation program tools (i.e. cost-share practices, easements, technical assistance)

Rapid Watershed Assessments provide information that helps land-owners and local leaders set conservation priorities.



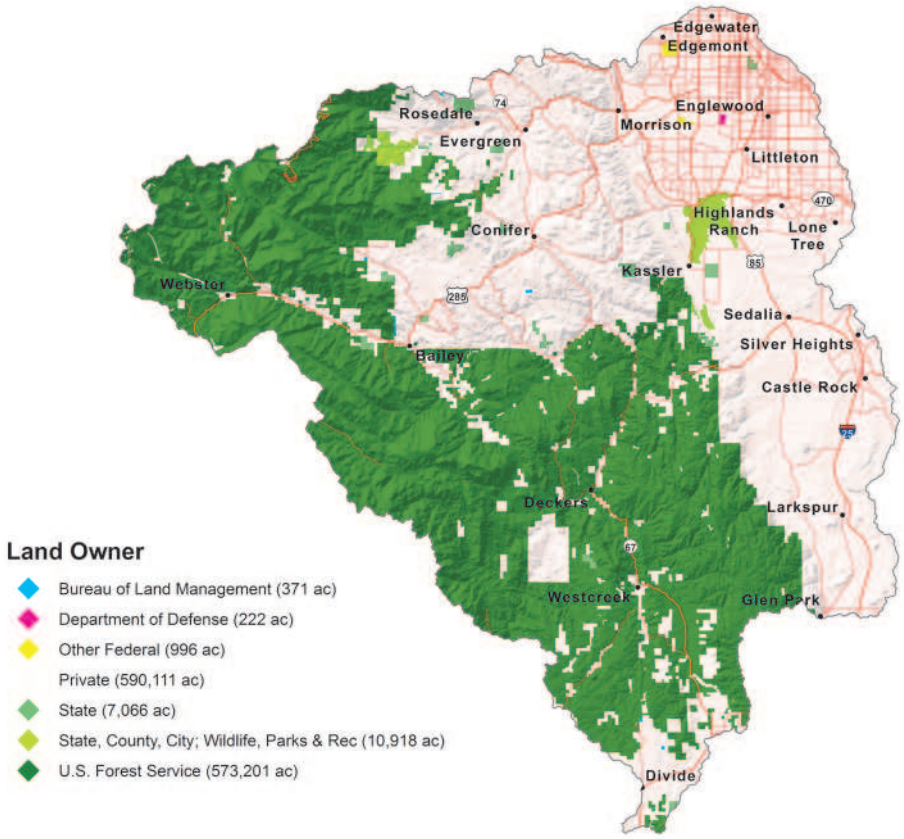
County	County Acres	County Acres in UPPER SOUTH PLATTE Watershed	% of County in the Watershed	% of Watershed in the County
Arapahoe	515,064	33,314	6.5%	2.8%
Clear Creek	253,843	69,884	27.5%	5.9%
Denver	99,723	25,749	25.8%	2.2%
Douglas	538,996	349,482	64.8%	29.5%
El Paso	1,362,117	5,739	0.4%	0.5%
Jefferson	494,626	339,012	68.5%	28.7%
Park	1,413,689	257,906	18.2%	21.8%
Teller	357,406	101,741	28.5%	8.6%
		1,182,827		

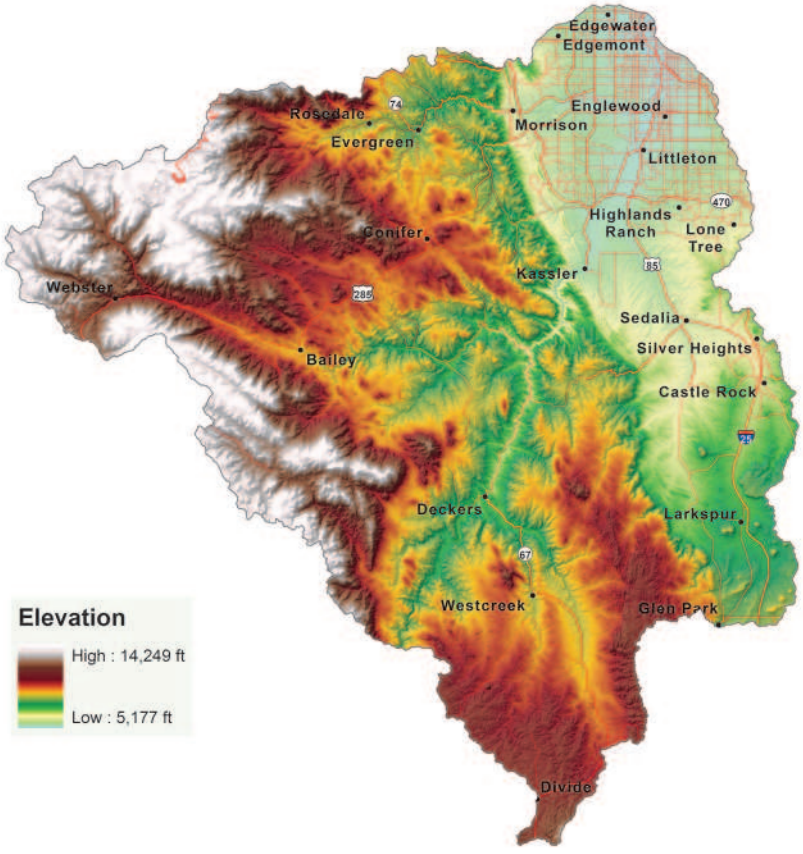

Upper South Platte - 10190002
Black Hawk
Idaho Springs
Blue Valley
Georgetown
Dillon
Montezuma
Breckenridge
CLEAR CREEK
Webster
285
Bailey
Jefferson
Fairplay
PARK
Tarryall
Platte Springs
Hartsel
Lake George
Wheat Ridge
Denver
Aurora
Pleasant View
Edgemont
El Rancho
Paradise Hills
Evergreen
Englewood
DENVER
ARAPAHOE
Sullivan
Centennial
Lone Tree
Castle Pines
25
Conifer
JEFFERSON
Franktown
Castle Rock
DOUGLAS
Larkspur
Deckers
67
Kiowa
Palmer Lake
Peyton
EL PASO
Colorado Springs
Woodland Park
TELLER
Divide
Midland
Buena Vista
0
3
6
12
18
24
Miles

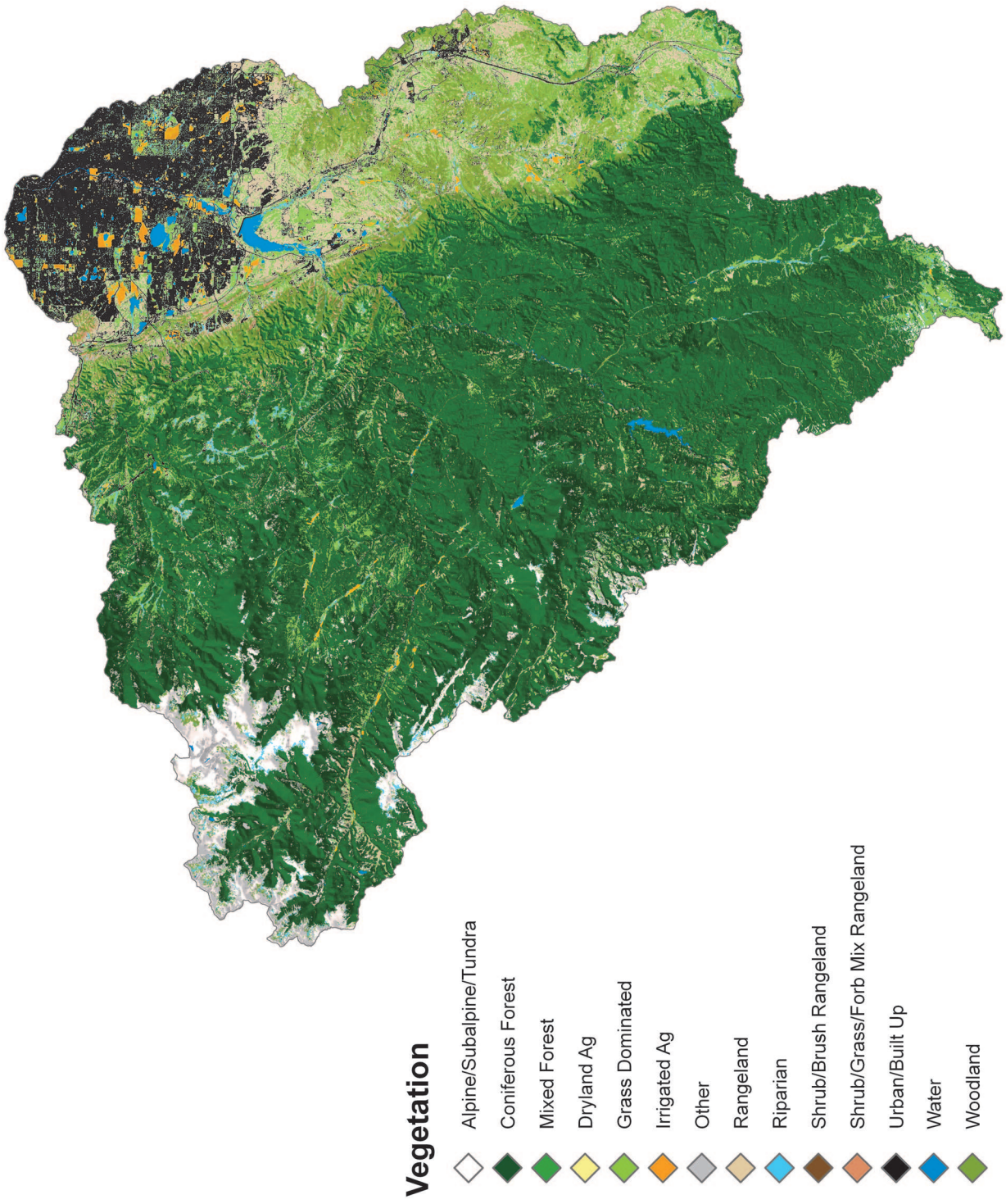


Common Resource Areas (CRA): Geographical areas where resource concerns, problems, and treatment needs are similar. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographical boundaries of the common resource area.

MLRA	CRA	CRA NAME	CRA DESCRIPTION
48A	**48A.1**	Southern Rocky Mountains - High Mountains and Valleys	This area is best characterized by steep, high mountain ranges and associated mountain valleys. The temperature regimes are mostly frigid and cryic; moisture regimes are mainly ustic and udic. Vegetation is sagebrush-grass at low elevations, and with increasing elevation ranges from coniferous forest to alpine tundra. Elevations range from 6,500 to 14,400 feet.
49	**49.1**	Southern Rocky Mountain Foothills	This area is generally a transition between the Great Plains and the Southern Rocky Mountains. The temperature regime is mesic or frigid, and moisture regime is ustic. Characteristic native vegetation ranges from grasslands and shrubs to ponderosa pine and Rocky Mountain Douglas fir forest.


Edgewater
Edgemont
Rosedale
74
Evergreen
Englewood
Morrison
Littleton
470
Highlands Ranch
Lone Tree
Conifer
85
Kassler
Webster
285
Sedalia
Silver Heights
Bailey
Castle Rock
25
Deckers
Larkspur
67
Westcreek
Glen Park
Divide
Land Owner
Bureau of Land Management (371 ac)
Department of Defense (222 ac)
Other Federal (996 ac)
Private (590,111 ac)
State (7,066 ac)
State, County, City; Wildlife, Parks & Rec (10,918 ac)
U.S. Forest Service (573,201 ac)


Edgewater
Edgemont
Rosedale
74
Evergreen
Englewood
Morrison
Littleton
470
Highlands Ranch
Lone Tree
Conifer
85
Kassler
Webster
285
Sedalia
Silver Heights
Bailey
Castle Rock
25
Deckers
Larkspur
67
Westcreek
Glen Park
Divide
Elevation
High : 14,249 ft
Low : 5,177 ft

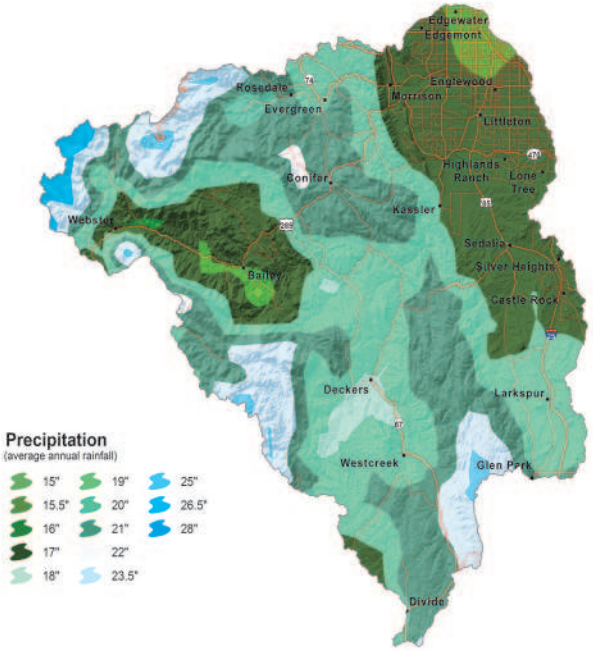

Vegetation
Alpine/Subalpine/Tundra
Coniferous Forest
Mixed Forest
Dryland Ag
Grass Dominated
Irrigated Ag
Other
Rangeland
Riparian
Shrub/Brush Rangeland
Shrub/Grass/Forb Mix Rangeland
Urban/Built Up
Water
Woodland

UPPER SOUTH PLATTE Land Use	Total Acreage	Vegetation	Acreage
Cropland	5,143	Dryland Ag Irrigated Ag*	95.4 5,048.0
Rangeland/Grassland	313,794	Alpine Grass Dominated Alpine Grass/Forb Mix Gambel Oak Grass Dominated Grass/Forb Mix Mesic Mountain Shrub Mix Shrub/Grass/Forb Mix Subalpine Grass/Forb Mix SubAlpine Shrub Community Xeric Mountain Shrub Mix	151.0 32,128.0 63,230.6 113,335.4 79,179.4 2,602.3 5,497.8 1,949.0 3,578.7 12,137.2
Forest	724,994	Aspen Bristlecone Pine Douglas Fir Douglas Fir/Aspen Mix Douglas Fir/Englemann Spruce Mix Englemann Spruce/Fir Mix Fir/Lodgepole Pine Mix Limber Pine Lodgepole Pine Lodgepole Pine/Aspen Mix Lodgepole/Spruce/Fir Mix P. Pine/Gambel Oak Mix Ponderosa Pine Ponderosa Pine/Aspen Mix Ponderosa Pine/Douglas Fir Mix Spruce/Fir/Aspen Mix Spruce/Fir/Lodgepole/Aspen Mix Spruce/Lodgepole Pine Mix	15,532.1 113.7 88,864.0 4,147.5 55.6 70,686.2 12,093.0 675.1 38,081.7 1,327.4 48,800.8 27,595.7 284,315.8 10,381.2 115,620.6 204.2 301.5 6,191.8
Riparian	20,784	Cottonwood Herbaceous Riparian Riparian Upland Willow/Shrub Mix Willow	2,451.1 7,617.3 2,288.2 3,866.1 4,560.9
Water	7,376	Water	7,375.6
Other	109,775	Barren Land Commercial Disturbed Soil Residential Rock Talus Slopes & Rock Outcrops Urban/Built Up	4,519.7 28,244.6 61.3 53,938.9 5,409.1 5,946.3 11,641.0
~Total Watershed Acres			**1,181,866**

* Colorado Decision Support Systems Data

Precipitation

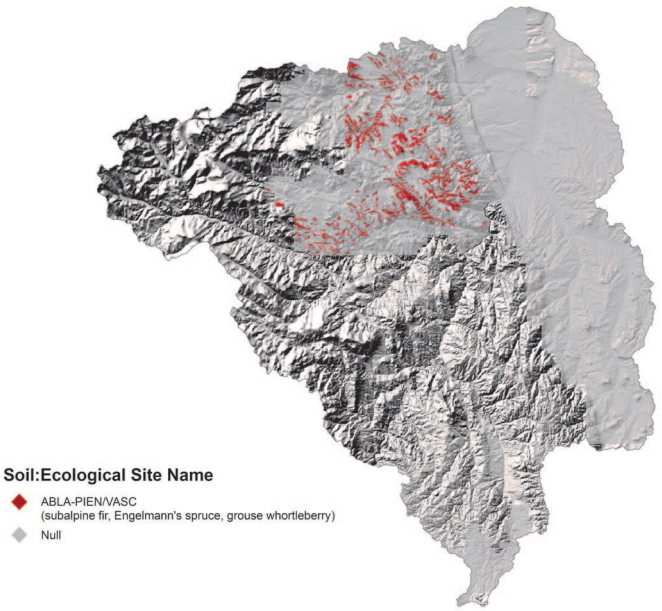
Droughts are regular visitors to the watershed as with the rest of Colorado. Statewide, in the 1900's alone, four prolonged dry spells occurred. There was one in the 1910s. Another, in the '30s, caused the dust-bowl period. The second worst drought on record in the state occurred in the mid-50s. A series of hot, dry summers following a period of scant mountain snowpack created water shortages. The fourth drought hit parts of Colorado in the late 1970s. In this century, the most severe drought since 1723 hit the state in 2002. Prior to the 1700's, researchers looking at tree ring records have found evidence of even more severe droughts, some lasting many years. Rainfall occurs as frontal storms in the spring and early summer and high intensity, convective thunderstorms in late summer. Maximum precipitation is from mid spring through late autumn. Precipitation in winter is snow.

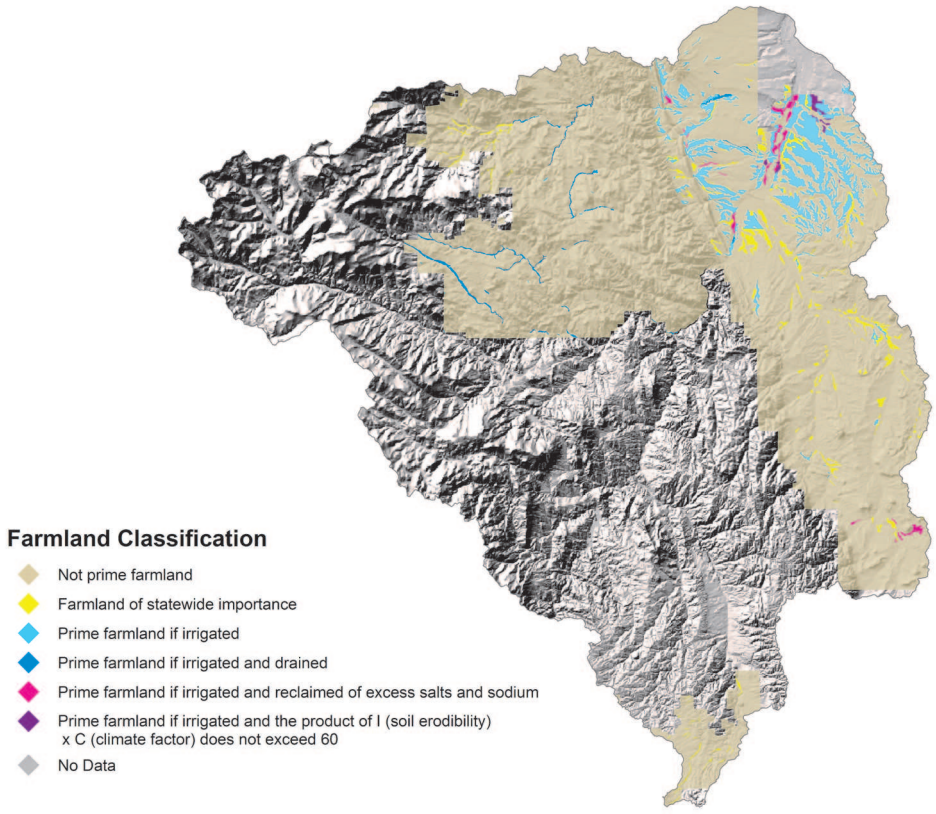


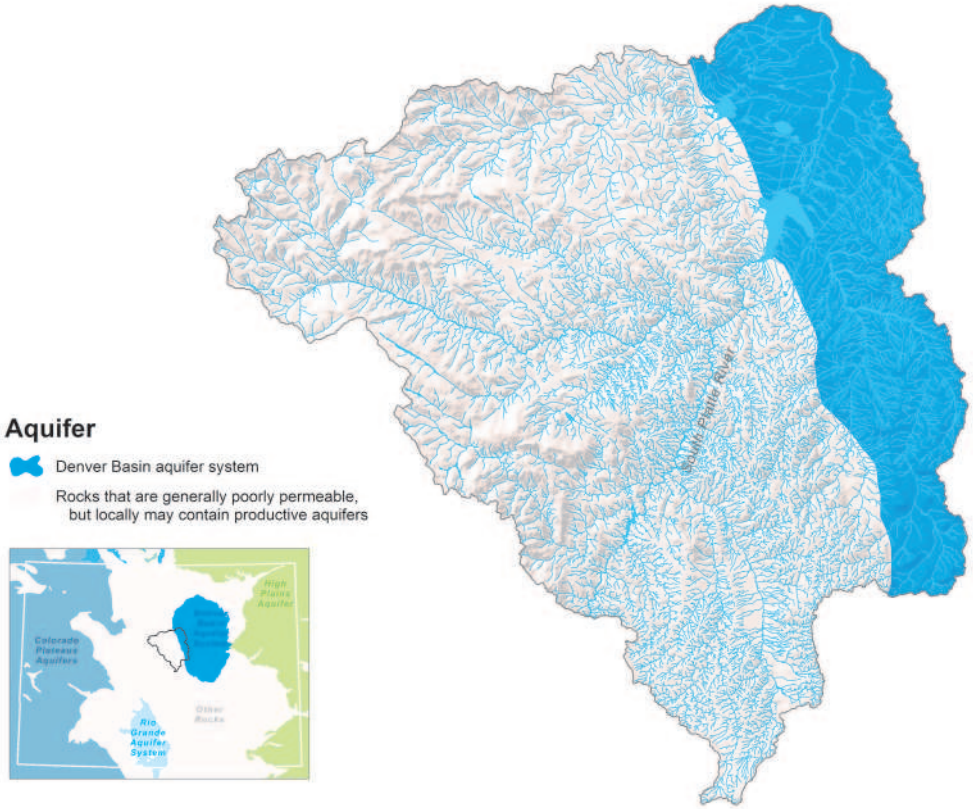
Ecological Sites

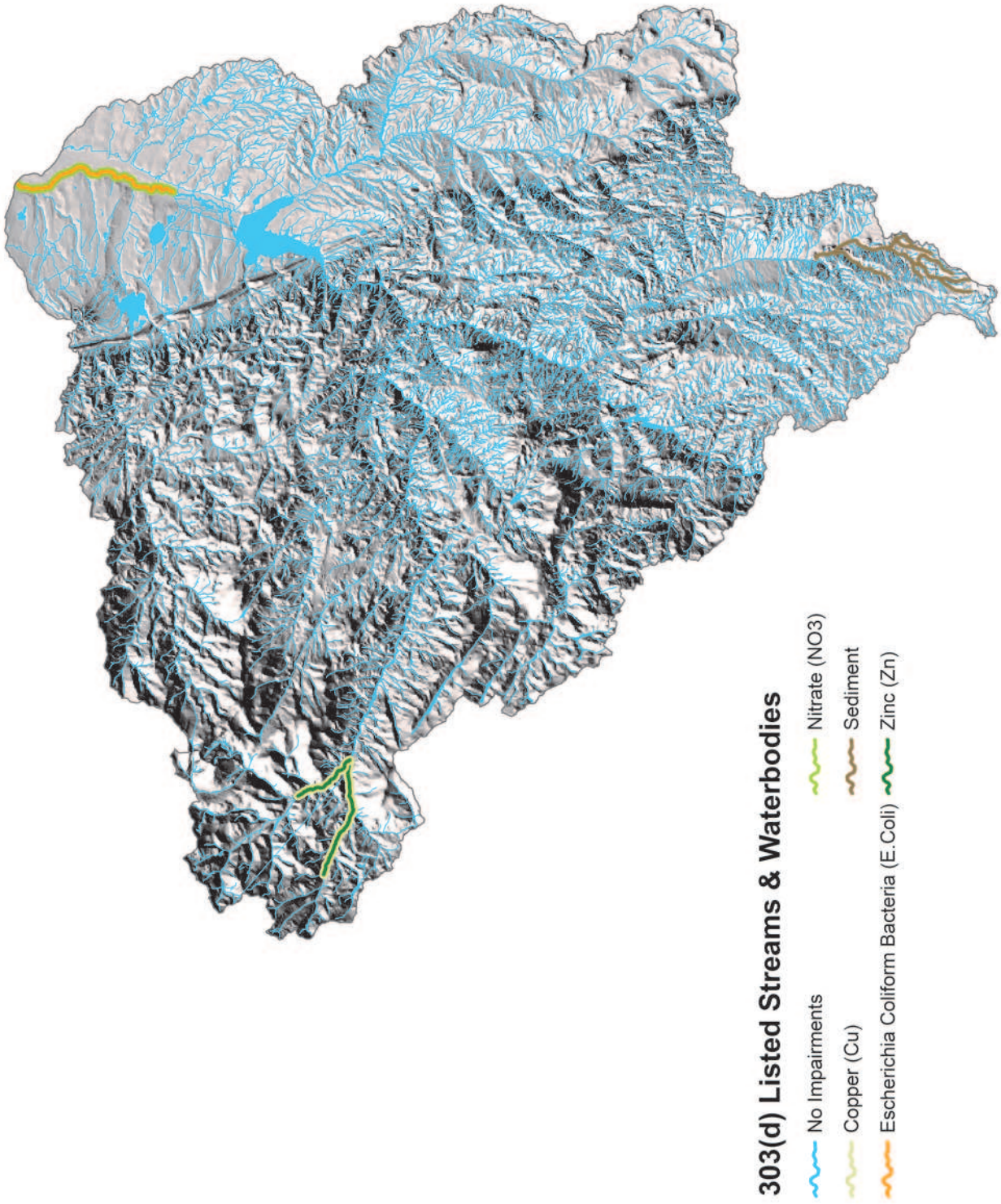
The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production.

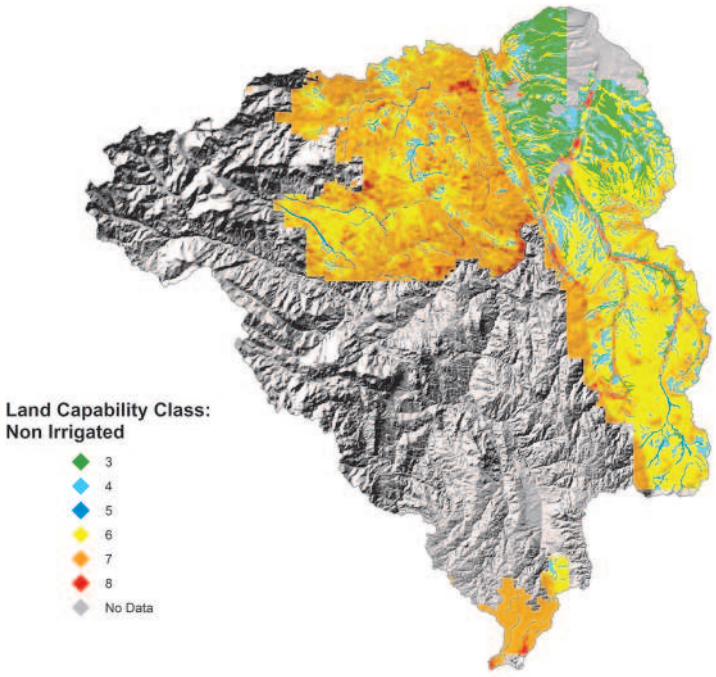
Ecological Site maps give an overall indication of the soils plant relationship in the area. More detailed descriptions of ecological sites are provided in the Field Office Technical Guide (FOTG). The FOTG is available in local offices of the Natural Resources Conservation Service (NRCS) and online at http://www.nrcs.usda.gov/technical/efotg/.

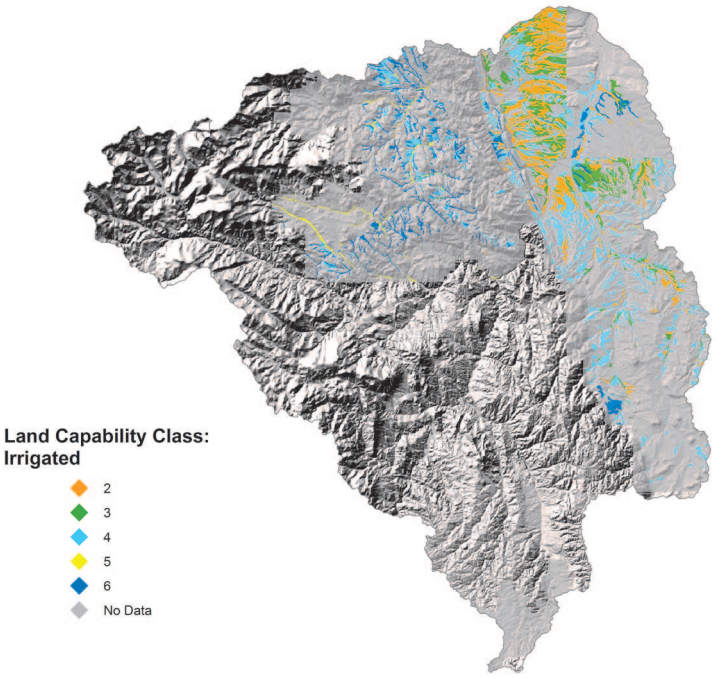



Farmland Classification
Not prime farmland
Farmland of statewide importance
Prime farmland if irrigated
Prime farmland if irrigated and drained
Prime farmland if irrigated and reclaimed of excess salts and sodium
Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
No Data


Aquifer
Denver Basin aquifer system
Rocks that are generally poorly permeable, but locally may contain productive aquifers
South Platte River
High Plains Aquifer
Colorado Plateaus Aquifers
Rio Grande Aquifer System
Other Rocks


303(d) Listed Streams & Waterbodies
No Impairments
Nitrate (NO3)
Copper (Cu)
Sediment
Escherichia Coliform Bacteria (E.Coli)
Zinc (Zn)





Class 1- soils have few limitations that restrict their use.

Class 2 - soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 - soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

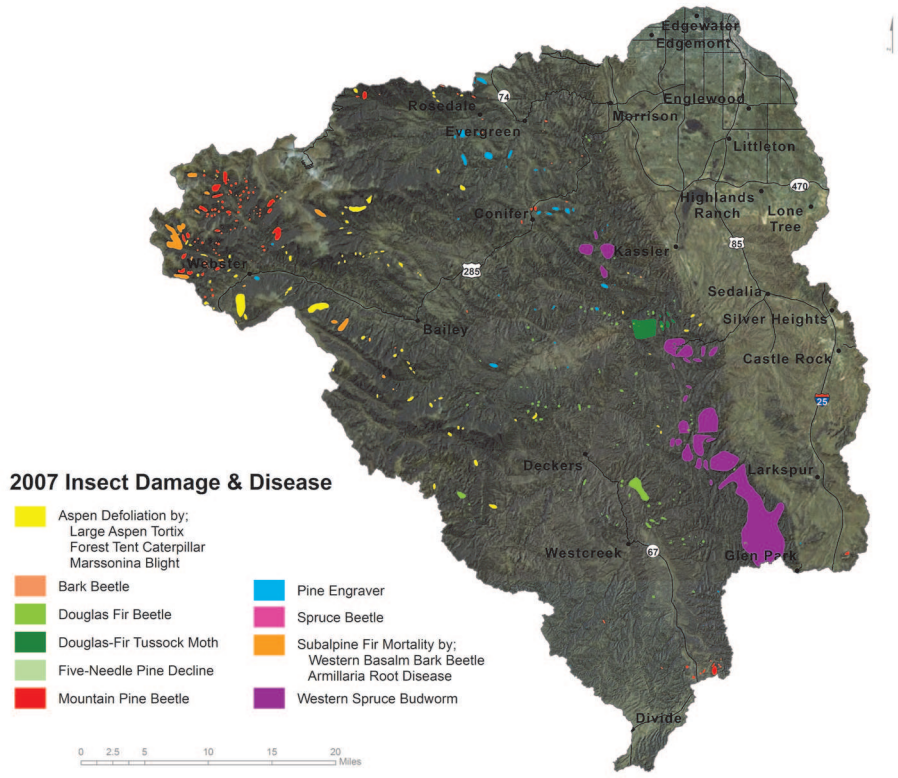
Class 4 - soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

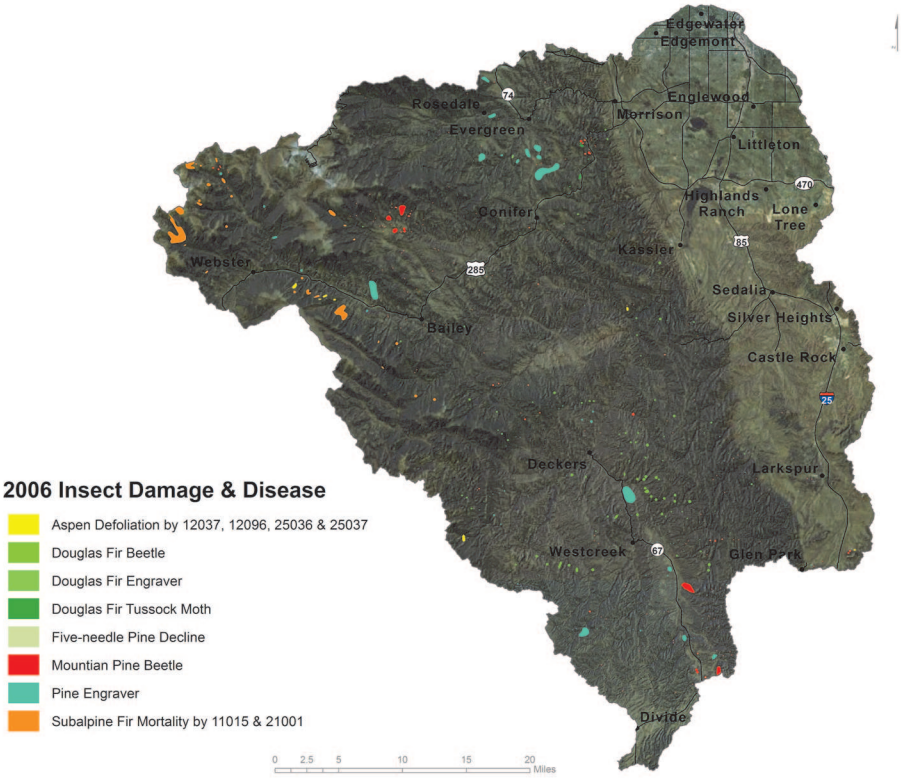
Class 5 - soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 - soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 - soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 - soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.


Edgewater
Edgemont
Rosedale
74
Englewood
Morrison
Evergreen
Littleton
470
Highlands
Ranch
Lone
Tree
Conifer
85
Kassler
Webster
285
Sedalia
Silver Heights
Bailey
Castle Rock
25
Deckers
Larkspur
Westcreek
67
Glen Park
Divide
2007 Insect Damage & Disease
Aspen Defoliation by;
Large Aspen Tortix
Forest Tent Caterpillar
Marssonina Blight
Bark Beetle
Douglas Fir Beetle
Douglas-Fir Tussock Moth
Five-Needle Pine Decline
Mountain Pine Beetle
Pine Engraver
Spruce Beetle
Subalpine Fir Mortality by;
Western Basalm Bark Beetle
Armillaria Root Disease
Western Spruce Budworm
0 2.5 5 10 15 20
Miles


Edgewater
Edgemont
Rosedale
74
Englewood
Morrison
Evergreen
Littleton
470
Highlands
Ranch
Lone
Tree
Conifer
85
Kassler
Webster
285
Sedalia
Silver Heights
Bailey
Castle Rock
25
Deckers
Larkspur
Westcreek
67
Glen Park
Divide
2006 Insect Damage & Disease
Aspen Defoliation by 12037, 12096, 25036 & 25037
Douglas Fir Beetle
Douglas Fir Engraver
Douglas Fir Tussock Moth
Five-needle Pine Decline
Mountian Pine Beetle
Pine Engraver
Subalpine Fir Mortality by 11015 & 21001
0 2.5 5 10 15 20
Miles

State & Federally Threatened, Endangered & Candidate Species as well as Species of Special Concern

Common Name	Scientific Name	Class	Federal Status	State Status	Comments
American Peregrine Falcon	*Falco peregrinus anatum*	Birds	None	**Concern**	Occurs in the watershed
Bald Eagle	*Haliaeetus leucocephalus*	Birds	None	**Threatened**	Occurs in the watershed
Gunnison's Prairie Dog	*Cynomys gunnisoni*	Mammals	**Candidate**	None	Occurs in the watershed
Iowa Darter	*Etheostoma exile*	Fish	None	**concern**	Occurs in the watershed
Least Tern	*Sterna antillarum*	Birds	**Endangered**	**Endangered**	Occurs downstream of watershed; Depletions are a concern here.
Mexican Spotted Owl	*Strix occidentalis lucida*	Birds	**Threatened**	**Threatened**	Occurs in the watershed
Northern leopard frog	*Rana pipiens*	Amphibians	None	**Concern**	Occurs in the watershed
Pawnee Montane Skipper	*Hesperia leonardus montana*	Insects	**Threatened**	None	Occurs in the watershed
Pallid Sturgeon	*Scaphirhynchus albus*	Fish	**Endangered**	None	Occurs downstream of watershed; Depletions are a concern here.
Piping Plover	*Charadrius melodus*	Birds	**Threatened**	**Threatened**	Occurs downstream of watershed; Depletions are a concern here.
Townsend's Big-eared Bat	*Corynorhinus townsendii pallescens*	Mammals	None	**Concern**	Occurs in the watershed
Whooping Crane	*Grus Americana*	Birds	**Endangered**	**Endangered**	Occurs downstream of watershed; Depletions are a concern here.

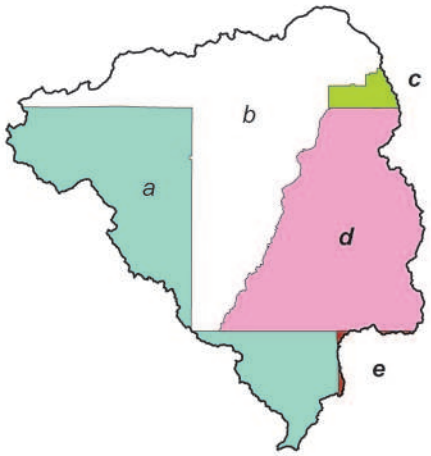
Social Data	Arapahoe	Clear Creek	Denver	Douglas	Jefferson	Park	Teller
Total population	254,207	9,322	545,198	248,950	519,071	14,523	2,055
Male	258,572	4,857	276,183	124,213	257,684	7,510	10,412
Female	265,635	4,465	269,015	124,737	261,387	7,013	10,143
Median age (years)	34.8	40.2	34.3	32.9	38.8	40	39.4
White	410,747	8,984	392,164	225,373	461,995	13,807	19,510
Black or African American	48,874	26	54693	3530	4380	72	113
American Indian and Alaska Native	4,180	68	6627	991	2457	134	200
Asian	24,931	34	15905	8045	13581	60	120
Native Hawaiian and Other Pacific Islander	719	3	108	224	65	4	16
Some other race	21,919	95	61464	4655	22965	179	185
Hispanic or Latino (of any race)	85,131	361	191510	16205	66263	628	718
In labor force (population 16 years and over)	292,087	5,776	297,292	140,132	293,688	8,134	11,493
Median household income (dollars)	54,838	50,997	42,370	87,670	60,944	51,899	50,165
Median family income (dollars)	67,456	61,400	52,139	99,531	73,355	57,025	57,071
Per capita income (dollars)	30,170	28,160	27,715	37,931	30,163	25,019	23,412
Families below poverty level	x	79	x	x	x	143	202
Individuals below poverty level	x	501	x	x	x	803	1096
X means that value is not applicable or not available							
Farms (number)	448		10	903	457	217	118
Land in farms/ranches (acres)	332,585		40	199,491	90,366	298,286	73,643
Average size farm/ranch (acres)	742		4	221	198	1,375	624
Median size farm (acres)	82		2	55	35	288	90
Average age of farmer or rancher	53.1			55	55.1	54.9	55.3
Net cash return from ag sales ($1,000)	1,897	-81		-3,441	6,568	-529	-227
Cattle and calves (number)	6,000			4,000	2,000	8,000	1,500

Identified Long Range Resource Concerns

Top Three Concerns within Conservation Districts

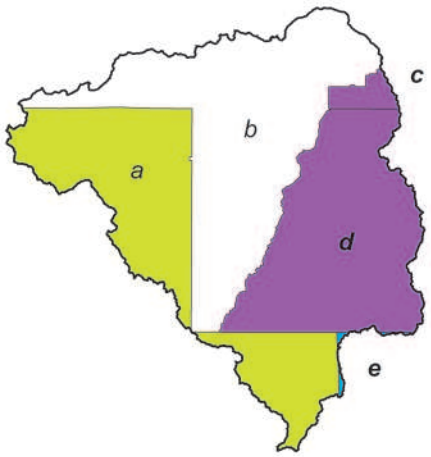
Conservation Districts
- *a Teller-Park*
- *b Jefferson*
- *c West Arapahoe*
- *d Douglas County*
- *e El Paso*

#1



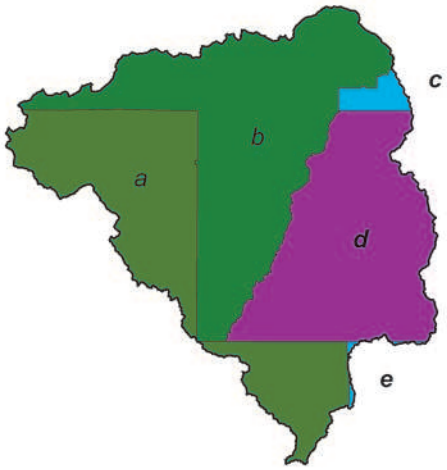
- Board & Mgmt. Activities
- Healthy Grasslands
- Small Acreage Resource Mgmt.
- Water Erosion
- Water Quality & Quantity

#2



- Conservation Education
- Land Management
- Land Use/Growth
- Water Quality/Quantity

#3



- Forest Management
- Forset Health
- Land & Water Use
- NRCS Conservation Program Coordination
- Water Quiality/Quantity

Selected Conservation Application Data

	FY 2004	FY 2005	FY 2006	FY 2007	Total
Practices Applied					
Prescribed Grazing	7,938	392	900	697	9,927

Conservation Systems to Address Major Resource Concerns

Primary Resource Concern:	**Rangeland Health**			
Conservation System Description:	Prescribed Grazing—planned management that provides adequate recovery opportunity between grazing events and proper stocking of animals.			**Based on Conservation System Guide Code:** CO 48B.1-GR-01-R-Grazing
Practices	**Unit**	**Quantity**	**Cost/Unit ($)**	**Estimated Cost ($)**
Prescribed Grazing				
Fence (382)	Ft.	2,000	0.6	1,200
Pest Management (595)	Ac.	100	6,000	6,000
Pipeline (516)	Ft.	500	2.40	1,200
Upland Wildlife Habitat Management (645)	Ac.	100	na	0
Watering Facility (614)	No.	.5	600	300
Rangeland costs	Median Size Ranch—300 acres	224	8,700	**$1,948,800**

FOOTNOTES/ BIBLIOGRAPHY

Threatened and Endangered Species information was gathered using data from the Colorado Division of Wildlife (CDOW) Natural Diversity Information Source (NDIS). NDIS GIS data may be downloaded at http://ndis.nrel.colostate.edu. For more information on Colorado's Endangered & Threatened Species, as well as Species of Concern, visit http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/ThreatenedEndangeredList/ListOfThreatenedAndEndangeredSpecies.htm or http://mountainprairie.fws.gov/endspp/CountyLists/COLORADO.htm

Resource Concerns were identified using the Colorado Association of Conservation Districts' (CACD) long range (10 year) plans from the period of 1996-2000. Only the top three environmental resource concerns for each district were used. For more information on Colorado's Conservation Districts, visit http://www.cacd.us.

Maps were generated using Soil Survey Geographic Database (SSURGO) tabular and spatial data. SSURGO data was downloaded for the following Colorado surveys:

Arapahoe County (CO005) Published 1/25/2008

Castle Rock Area (CO622) Published 1/28/2008

Teller-Park Area (CO638) Published 5/19/2008

Golden Area (CO641) Published 12/15/2005

Georgetown Area (CO653) Published 1/8/2007

Vegetation data was generated using the Colorado Division of Wildlife's "Colorado Vegetation Classification Project" (CVCP) data. Completed in 2003, the CVCP is a landscape level vegetation dataset created using Landsat TM imagery and then formatted for GIS use. The species identified are an overview of the most common species associated in each cover type, in order of greatest occurrence. For more information on the Colorado Vegetation Classification Project, visit http://ndis.nrel.colostate.edu/coveg.

All border state (if applicable) vegetation data courtesy of the National Land Cover Dataset (NLCD). For more information visit http://www.mrlc.gov/mrlc2k_nlcd.asp

Common Resource Area (CRA), a subdivision of the Major Land Resource Area (MLRA), is a geographical area where resource concerns, problems, or treatment needs are similar. Geographic boundaries of a CRA are determined by landscape conditions, soil, climate, human considerations and other natural resource information. For more information on Common Resource Areas visit http://soils.usda.gov/survey/geography/cra.html.

Average Annual Precipitation data was developed through a partnership between the Natural Resources Conservation Service's (NRCS) National Water and Climate Center (NWCC), the National Cartography and Geospatial Center (NCGC), and the PRISM (the Parameter-elevation Regressions on Independent Slopes Model) group at Oregon State University (OSU), developers of PRISM. Mean annual precipitation maps were developed calculating averages of rainfall for the period of 1961-1990. For more information on PRISM data visit http://www.ncgc.nrcs.usda.gov/products/datasets/climate/docs/fact-sheet.html or for more information about technical aspects of PRISM, visit the PRISM website at http://www.ocs.orst.edu/prism.

Land Ownership (status,07/22/2006 dataset) data was obtained from the Bureau of Land Management, Colorado State Office. For more information, visit http://www.blm.gov/co/st/en/BLM_Programs/geographical_sciences/gis.html

Relief & Elevation maps were created using the National Elevation Dataset (NED), 30m Digital Elevation Model (DEM) raster product assembled by the U.S. Geological Survey (USGS). A hillshade grid was created from the 30m DEM to create a 3D effect. For more information about the NED visit http://ned.usgs.gov. The data was downloaded from the NRCS Geospatial Data Gateway at http://datagateway.nrcs.usda.gov.

Forest Insect & Disease data obtained from the U.S. Forest Service annual aerial survey. For more information visit http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/